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| 1 | *Six from:*<br><br>Warping/deforming these from the original images so final image has same shape<br>...use of forward mapping<br>...each pixel in original image is mapped to an appropriate<br>...pixel in final image<br>...use of reverse mapping<br>...each pixel in the final image is sampled for an usable/ appropriate pixel in the original<br>...all final image pixels are mapped to an original image pixel<br>Cross-dissolving the images<br>...a sequence of images shows a gradual fade from one to the other<br>...via a (series of) transition images<br>...original image is gradually distorted and faded out<br>...final image starts out totally warped to the first and is faded in. | 6 |
| 2 | ***Eight** from:*<br><br>Using the four frames as key frames<br>...filling in of frames between frames 1, 2, 3 and 4<br>...using variable frame frequency depending on content<br>...fewer frames between frames 1 and 2 than e.g. between 2 and 3<br>...as background is stationary then lower frame rate than foreground characters<br>May be low frame rate so makes motion jerky/unrealistic<br>Need to add at least 8 frames in order to create smooth movement<br>Need to add enough frames so that frame rate is below 'flicker fusion' threshold...<br>...else movement will appear to flicker and illusion of movement is destroyed<br>Motion blurring of the figures between frames 1 and 2 etc. can simulate faster movement. | 8 |
| 3 | **Six** *from:*<br><br>Animator drew frames 1 and 5 and 8<br>Frame 8 created by flipping/reflecting of frame 1<br>These are used as key frames<br>Frame 1 was duplicated/copied (by computer) to create frames 2, 3 and 4<br>Frame 5 was duplicated/copied (by computer) to create frames 6 and 7<br>Key frames define the start and end point of transitions that can be used by a computer-based animation application<br>Tweening was used to create frames in between. | 6 |

STUDENTS RESOURCE

CamScanner

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| 4(a) | **Four** *from:*<br><br>Animator only needs to draw 12 frames instead of the full 24 so saves time / effort<br>...fewer animators / less computer time needed for the whole project<br>(Drawing on 'twos') makes slow animations look / appear smoother to the eye<br>Less precision / accuracy is needed than for drawing on 'ones' ('ones' animation does not look jerky) so drawing can be done faster / with less skill from animator<br>(Drawing on 'twos') makes animations appear more lively / active than when drawn on 'ones'. | 4 |
| (b) | **One** *from:*<br><br>Action needs to appear very fast / active<br>Animation can include a flurry of activity around the main object<br>Can portray a very smooth animation of many objects in the animation. | 1 |
| (c) | **One** *from:*<br><br>The animation may appear jerky / flashing of objects on / off<br>Objects move very fast. | 1 |
| 5 | *Five from:*<br>*Similarities:*<br>Morphing and tweening can both change the shape an object.<br>Morphing and tweening can both change the motion of object.<br>Morphing and tweening can both change the size/colour/location of object.<br><br>*Differences:*<br>Morphing changes one object into a totally/completely different object.<br>Changes by morphing are smooth/fluid.<br>Morphing (often) overlays grid on image and uses it to remap new image over old, whereas tweening uses location points.<br>Tweening changes animated object's location/motion by creating intermediate frames.<br>Tweening requires establishment of key frames.<br>Tweening moves points of location of the object to new points whereas morphing does not (usually) do so.<br><br>***Must have at least one from each to gain full marks.*** | 5 |

STUDENTS RESOURCE

CamScanner

ALI AKRAM

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| 6(a) | **Four** from:<br><br>Background/non-moving objects drawn on one cell and placed at bottom of stack of cells<br>Character to be moved drawn on transparent cell<br>(Transparent cell) placed on top of background and photographed/digitised<br>Character redrawn as moved (on transparent cell) and replaced<br>Re-photographed/digitised in next frame<br>Process repeated for subsequent frames. |
| (b) | **Four** from:<br><br>Scene/characters arranged and lighted/lit<br>Camera/computer app/software setup<br>Frame recorded/photographed<br>Frame checked/viewed for corrections/deleted if not required<br>Characters/objects moved slightly and re-photographed into new frame<br>Use of 'onion-skinning'/faint outline of previous frame in software/app to show placement of characters/objects<br>Frames duplicated (in app/software) to slow the motion down e.g. when character changes direction suddenly. |

STUDENTS RESOURCE

CamScanner